REMARKS/ARGUMENTS

Applicants appreciate the consideration shown by the Office, as evidenced by the Office Action, mailed on April 18, 2008. After consideration of the Office Action, Claims 1, 10, 11, 20 and 21 have been amended, and Claim 6 has been cancelled. Claims 1-4, 6-13 and 15-21 are under consideration in the present application. Applicants respectfully request reconsideration of the application by the Examiner in light of the above amendments and the following remarks offered in response to the Office Action.

Rejections under 35 U.S.C. § 103(a)

Applicants respectfully traverse the rejection of Claims 1-4, 6-13 and 15-21 under 35 U.S.C. §103(a) as being unpatentable to U.S. Patent No. 6,623,692 to Jackson et al. (hereinafter "Jackson"). The Examiner cites Jackson as disclosing an alloy having a composition relative to that of the present invention. The Examiner states that the disclosed amounts of platinum, palladium, tungsten, rhenium and ruthenium for a rhodium-based alloy Jackson, overlap the alloy composition of the present invention.

Amended independent Claim 1 of the present application recites an alloy comprising at least about 50 atomic percent rhodium; up to about 49 atomic percent of a first material, said first material comprising at least one of palladium, platinum, iridium, and combinations thereof; from about 1 to about 15 atomic percent of a second material, said second material comprising at least one of tungsten, rhenium, and combinations thereof; up to about 10 atomic percent of a third material, said third material comprising at least one of ruthenium, chromium, and combinations thereof; and a fourth material, said fourth material comprising at least one of zirconium, yttrium, hafnium, tantalum, aluminum, titanium, scandium, elements of the lanthanide series, elements of the actinide series, and combinations thereof, wherein the fourth material is present in an amount from about 0.1 to about 2 atomic percent; wherein said alloy comprises an A1-structured phase at temperatures greater than about 1000° C, in an amount of at least about 90% by volume.

Amended independent Claims 10, 11, 20 and 21 of the present application each recite an alloy which comprises a fourth material, said fourth material comprising at least one of zirconium, yttrium, hafnium, tantalum, aluminum, titanium, scandium, elements of the lanthanide series, elements of the actinide series, and combinations thereof, wherein the fourth material is present in an amount from about 0.1 to about 2 atomic percent.

The Examiner states that because the claims of the present invention used the term "comprising" and other elements may be present, it would have been obvious to one of ordinary skill in the art to modify the ranges of zirconium, hafnium, tantalum, titanium and niobium such that the fourth material is present in an amount from about 0.1 to about 2 atomic percent in order to achieve the desired precipitation strengthening within the alloy of Jackson. Applicants respectfully disagree.

As previously stated, the precipitation strengthening metals in Jackson are used to promote the formation of an $L1_2$ structured phase in the alloy. The formation of the $L1_2$ structured phase requires the precipitation strengthening metals to be present an amount between 3% and 9% in the alloy compositions in Jackson (see

column 4, lines 24-28). Jackson specifically states that as the proportion of precipitation strengthening metals in the alloy increases, the volume fraction of the $L1_2$ structured phase increases (see column 4, lines 31-34). Accordingly, there would have been no motivation to modify the concentration of the precipitation strengthening agents to an amount between 0.1 and 2 atomic percent in the Jackson alloy composition.

Accordingly, Applicants submit that independent Claim 1 and its dependent Claims 2-4 and 6-9, independent Claim 10, independent Claim 11 and its dependent Claims 12, 13, 15-19, independent Claim 20, and independent Claim 21 are patentably distinct and allowable over Jackson.

Applicants respectfully traverse the rejection of Claim 18 under 35 U.S.C. §103(a) as being unpatentable over Jackson, and further in view of U.S. Patent No. 4,305,998 to Manty et al. (hereinafter "Manty"). This combination of references fail to teach, suggest, or disclose at least one element of the alloy composition as claimed in the present application.

The Examiner cites Manty as teaching the application of a protective coating to an aircraft engine component wherein the coating is made of chromium, molybdenum, niobium, tantalum, vanadium, zirconium, platinum, or rhodium or a combination thereof or alloy of any of these metals. However, the Examiner does not address any of the issues described about regarding Jackson. Thus, it is submitted that Manty fails to supply the deficiencies of Jackson as previously set forth, and this combination of references fails to teach, suggest, or disclose each and every element recited in the rejected claim. Accordingly, Applicants respectfully submit that independent Claim 11, and its dependent Claim 18 are allowable over the applied combination of references.

Applicants respectfully traverse the rejection of Claim 18 under 35 U.S.C. §103(a) as being unpatentable over Jackson, and further in view of U.S. Patent No. 4,399,199 to McGill et al. (hereinafter "McGill").

The Examiner cites McGill as disclosing the formation of thermal barrier layer consisting essentially of platinum group metals on turbine blades in order to provide a barrier to combustion gas penetration to the underlying substrate and increase the efficiency of the engine by forming a very smooth surface. It is respectfully submitted that McGill fails to supply the deficiencies of Jackson with respect to independent Claim 11 of the present application, as set forth above. Accordingly, Applicants respectfully submit that Claim 18 is allowable over the applied combination of references.

Double Patenting

The Examiner has rejected Claims 1-4, 6-13, 15-17 and 19-21 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 14 and 17-29 of U.S. Patent No. 6,623,692 to Jackson et al. Applicants believe the claims of the present application are patentably distinct from Claims 14 and 17-29 of the '692 patent. Specifically, Claims 14 and 17-29 of the '692 patent fail to describe an alloy which includes a material comprising at least one of zirconium, yttrium, hafnium, tantalum, aluminum, titanium, scandium, elements of the lanthanide series, elements of the actinide series, and combinations thereof, in an amount from about 0.1 to about 2 atomic percent, as claimed in the present application. Accordingly, Applicants respectfully request removal of the double patenting rejection.

Conclusion

In light of the remarks presented herein, Applicants believe that this serves as a complete response to the subject Office Action. If, however, any issues remain unresolved, the Examiner is invited to telephone the undersigned representative at the telephone number provided below.

Respectfully submitted,

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